

March 8, 2022
US Department of Transportation
Docket Operations
1200 New Jersey Avenue, SE
Room W12-140
Washington, DC 20590

In accordance with 14 CFR §11.15 and §11.81, EXCOLO aviation group (EXCOLO) petitions for an exemption for relief from §91.205(h)(7) and §91.1(a) to conduct flight operations under Part 91.

Extent of requested relief and reason for requesting relief:

The relief sought is to allow for Helicopter Night Vision Goggle (HNVG) operations with radar (radio) altimeters that are unreliable or not normally functioning due to radio frequency interference caused by the Federal Communications Commission's (FCC) allocation of a portion of the 3.7–3.98 GHz frequency band available for flexible use including 5G cellular applications.

The relief sought would allow EXCOLO to operate with inoperative or unreliable radar (radio) altimeters beyond the constraints 91.205 (h) (7) and /or aircraft flight supplement limitations (§91.9(a)) including operations and landings at airports and improved off-airport landing areas.

We support our request with the following information:

The Radio Technical Commission for Aeronautics (RTCA) authored "Assessment of C-Band Mobile Telecommunications Interference Impact on Low Range Radar Altimeter Operations" (RTCA Paper No. 274-20/PMC-2073) that reported "a major risk that 5G telecommunications systems in the 3.7–3.98 GHz band will cause harmful interference to radar altimeters on all types of civil aircraft - including commercial transport airplanes; business, regional, and general aviation airplanes; and both transport and general aviation helicopters." The report further indicated "that this risk is widespread and has the potential for broad impacts to aviation operations in the United States, including the possibility of catastrophic failures leading to multiple fatalities, in the absence of appropriate mitigations. Further, the impacts are not only limited to the intentional emissions from 5G systems in the 3.7–3.98 GHz band, but also the spurious emissions from such systems within the protected 4.2–4.4 GHz radar altimeter band directly." Currently, areas affected by 5G C-Band emissions are identified by NOTAM and are likely occur anywhere 5G antennas are present and will include most areas where helicopters operate.

In accordance with §91.205(h)(7) and limitations set forth in rotorcraft flight manual supplements for operations using NVGs, a radar altimeter "must be installed in the aircraft, functioning in a normal manner, and approved for use by the FAA." NVGs are presently used by the HAA industry, public safety, SAR organizations, and a litany of other operators to increase the level of safety while conducting vital life-saving and public safety operations. With effective mitigations, EXCOLO believes safe NVG operations can be conducted at night, including takeoffs and landings at airports and improved off-airport landing sites with a radar altimeter that may not function normally due to 5G C-Band cellular interference.

Helicopter Association International (HAI) petitioned for and was granted a similar exemption, Exemption No. 18973, Regulatory Docket No. FAA-2021-1028.

The reasons why a grant of exemption would be in the public interest and benefit the public as a whole:

EXCOLO believes a grant of exemption is reasonable and in the public interest for the following reasons:

1. EXCOLO provides aviation services to and from areas that are remote and we enhance the safety of our night time operations with the use of NVGs by properly trained and experienced flight crew members:
2. EXCOLO uses NVGs to enhance safe flight operations and training at night. EXCOLO always conducts NVG operations using a movable searchlight for operations at both on-airport and off-airport improved landing areas.
3. EXCOLO believes it is safer to fly at night with NVGs without an operable/normally functioning radar altimeter than it is to flight at night with a fully functioning radar altimeter without the aid of NVGs.
4. EXCOLO must conduct annual and recurrent NVG pilot training to meet federal requirements and the requirements as outlined in EXCOLO Company Operations Manual. Without this exemption, EXCOLO cannot conduct the required training resulting in loss of pilot and organizational NVG proficiency and currency.
5. EXCOLO is authorized to conduct HNVGO in accordance with 14 CFR Part 91. An exemption will allow EXCOLO to continue operations under the conditions and limitations of 14 CFR Part 91.
6. EXCOLO maintains close working relationships with local public safety aviation organizations. EXCOLO Part 91 NVG flight operations could support local, State and Federal agencies with safe NVG flight operations to remote areas at night for time critical deliveries if there was an emergency or disaster-related need.

The reasons why a grant of exemption would not adversely affect public safety or how the exemption would provide a level of safety at least equal to that provided by the rule(s) from which the exemption is sought:

While the radar altimeter is a useful instrument during NVG flight, EXCOLO crews employ a systematically thorough crosscheck of all instruments while primarily using visual cues to validate and ensure safety of the flight regime. In addition, all off-airport NVG operations are to and from improved landing areas only. EXCOLO personnel are involved in the development of these sites, and monitor these landing sites for changes that would affect the safety of our operations, including any changes to obstacles or lighting.

EXCOLO helicopters are equipped with an approved movable searchlight system, maintained in accordance with the manufacturer's instructions and 14 CFR, which provides the pilot(s) with great area illumination, detail, contrast, and obstacle identification and avoidance capabilities. The diligent use of this system provides key visual cues to determine height above the ground and assist in determining rates of closure, particularly when landing at airports or improved off-airport landing sites. Per Exemption No. 18973, "this determination ensures the pilot operates at a requisite level of safety with decision-making concerning landing."

EXCOLO crews regularly assess the safety and usability of the training areas and conduct thorough high and low area reconnaissance in those areas during every flight.

As stated in the previously issued HAI exemption, EXCOLO can achieve an equivalent level of safety in NVG operations by incorporating the following methods of alternate compliance:

- EXCOLO conducts pilot training both utilizing the radar altimeter operating normally and also simulating that the radar altimeter is unreliable, much like partial panel IFR training.

- EXCOLO pilots employ the use of the installed and approved moveable searchlight.
- EXCOLO pilots execute a systematic crosscheck of all instruments and outside visual cues.
- EXCOLO pilots conduct thorough high and low area reconnaissance of landing areas.
-

Additionally, EXCOLO personnel actively participate in the development and improvement of all of our off-airport landing areas to control and monitor and internally disseminate information about obstacles and other hazards.

Utilizing these mitigations, EXCOLO can continue to conduct NVG flight and training operations to the highest level of safety, including takeoffs and landings at airports and improved off-airport landing sites with a radar altimeter that may not be functioning normally due to 5G C-Band cellular interference. EXCOLO will seek the best routes around 5G interference areas whenever possible, but as 5G becomes more prominent, the mitigating procedures afforded by this exemption will enhance safety and permit continued safe operations.

Conditions and Limitations

If this exemption is approved, in a manner similar to Exemption No. 18973, EXCOLO will maintain an equivalent level of safety by previously stated alternative methods of compliance and adhering to the following conditions and limitations:

1. Helicopters may be operated under Part 91 with an inoperative or unreliable radar altimeter, including operations to and from airports and improved off-airport areas at night provided:
 - a. The aircraft is equipped with a moveable searchlight which the pilot must use to assist in obstacle detection and rates of closure.
 - b. The aircraft is equipped with an operable radar altimeter which the pilot uses when it is performing normally, and which the pilot disregards when abnormal operation is suspected.
 - c. VFR flight at night is not conducted without adequate visual surface light reference.
 - d. The aircraft is equipped with an approved Night Vision Imaging System, maintained according to relevant rotorcraft flight manual supplement(s) and the applicable ANVIS maintenance document, and installed via FAA approved installation methods.
2. EXCOLO NVG operations are not conducted to unimproved off-airport landing sites. Any landing to unfamiliar, unimproved sites will be only in response to an actual aircraft emergency, and will only occur when necessary to meet the emergency, in accordance with 14 CFR Part 91.3.
3. All NVG-qualified EXCOLO pilots also maintain currency and qualification for single-pilot IFR helicopter operations. In the event an EXCOLO pilot must conduct an actual IFR recovery from inadvertent IMC, EXCOLO pilots will employ procedures and aircraft systems in accordance with 14 CFR Part 91, and will deviate from Part 91 only to the extent necessary to meet the emergency. EXCOLO pilots will be trained to be aware of potential erroneous indications from installed radar altimeter equipment during instrument approach procedures at affected airports.
4. EXCOLO does not perform Category A operations and will not perform Category A operations under the requested exemption.

5. EXCOLO operations in Class G airspace will be conducted with weather minimums no lower than those specified in 14 CFR 91.

Note: Inoperable radar altimeters will be logged in accordance with 14 CFR Part 91.

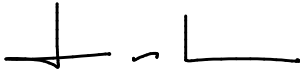
6. All NVG-qualified EXCOLO pilots must receive training on the applicability and use of this exemption prior to serving in an operation under this exemption. EXCOLO must maintain a record of such training and provide it to the FAA upon request. Training must include:
 - The provisions of this Exemption.
 - The possibility that radar altimeter indications may be unreliable.
 - The possibility that the radar altimeter could fail due to 5G C-Band radio frequency interference.
 - That pilots must be alert for, and be able to recognize, erroneous indications from the radar altimeter.

Many locations within the San Francisco Bay Area, and the EXCOLO operating area generally, are currently affected by 5G NOTAMs. As the Federal Communications Commission (FCC) has allowed new 5G C-Band services to operate in the 3.7-3.98 GHz C-Band range to already be in effect, EXCOLO respectfully requests the petition be given the highest priority and be processed in a most expeditious manner to avert an interruption to EXCOLO flight operations, the ability to maintain pilot and instructor currency and proficiency to ensure we meet the highest standards of night vision goggle operational safety.

Summary

EXCOLO aviation group petitions for an exemption for relief from 14 CFR Parts 91.205(h)(7) and 91.9(a) to allow for operations to be conducted under 14 CFR Parts 61 and 91, including operations with night vision goggles and night landings and takeoffs from airports and improved off-airport sites, with an unreliable or not normally functioning radar (radio) altimeter.

Respectfully,



[James M. Larsen \(Mar 8, 2022 11:23 PST\)](#)

James M. Larsen
Director of Operations
EXCOLO aviation group